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THE PROMISING FUTURE OF A SMALL GREEN PLANT

by ALEXANDER DOROZYNSKI

Medic, or Medicago, is a small, green leguminous plant with yellow flowers that can be seen growing on roadsides in North Africa and elsewhere around the Mediterranean. Although this modest, non-assuming plant is often taken for a weed, it has, in fact, an interesting past and a promising future.

Last century, some medic seeds were accidentally taken aboard ships travelling from Europe and Africa to Australia. In Southern Australia, medic encountered conditions similar to those of its native land, and thrived.

Australian farmers noticed that sheep thrived on medic, and started planting some. Most of these farmers had noticed that their land was not rich enough, or wet enough, to support a crop of wheat year after year, and adopted a fallow system, planting wheat one year, and nothing the next. Then, they came upon the idea of a rotation system, planting wheat one year, and medic the following year, then wheat again, and so on. This system turned out to be so successful that it has now been adopted in many parts of Southern Australia. Now, research is underway to determine whether this system can also be adapted to many parts of North Africa and the Middle East.

Medic's success story in Australia stems from a number of characteristics of this plant. One is that medic has a very hard seed. When seeds fall to the ground, most of them do not crack and germinate on the following year, but only a year later. Thus, once the rotation system has been established, it is not necessary to plant medic again: it goes on giving crop after crop every other year. In between, wheat is planted and harvested.

Another characteristic of medic is that, as a leguminous plant, it has on its roots nodules containing bacteria capable of fixing nitrogen from

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the atmosphere, and thus make it available to the plant. This can save a considerable amount of nitrogen fertilizers.

Yet another advantage of medic is that it inhibits the growth of weeds, which tend to proliferate on land left fallow.

Last but not least, medic is excellent sheep fodder, containing a substantial amount of protein. Thus it has contributed to the Australian sheep industry, as well as to its cereal production.

Research is now underway at the recently established International Center for Agricultural Research in the Dry Areas (ICARDA) to try to adapt this rotation system to North Africa and the Middle East, where, it is estimated, as many as 40 million hectares of land are left fallow every year because the soil is not sufficiently rich and does not receive enough rain.

The major research thrust is taking place at the ICARDA station near Aleppo, Syria, where an Australian agricultural scientist, John Doolette, will try to adapt a system he has become familiar with in his country and also experimented with in Tunisia.

This rotation system, he believes, should be particularly suitable to regions with very little rainfall (350 to 500 millimeters a year) and where cereal production is marginal.

"Nitrogen fixing bacteria native to the Middle East and North Africa appear to be adequate," says John Doolette, "and rotation trials in Tunisia have shown that wheat, following medic, has produced without fertilizers as much as wheat fertilized with 60 kilograms of nitrogen per hectare following a fallow year."

Research will nevertheless be required to screen several lines of medic and of strains of nitrogen-fixing bacteria against different soils in different climatic conditions, and to make sure that a rotation system is acceptable and beneficial to farmers in the region. "I believe", says Mr. Doolette, "that in many regions where this rotation can be introduced, cereal yields can be improved, and animal production can at least be doubled."

It will be several years, no doubt, before the medic-wheat rotation can be adopted on a large scale in parts of the vast region, stretching from Pakistan to Morocco, served by ICARDA. But if and when such a system is adopted, an important chapter will have been added to the remarkable story of this small green plant.

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